

**Notice of Allowability**

Application No.

10/681,374

Applicant(s)

ARSENAULT ET AL.

Examiner

Art Unit

Timothy J. Kugel

1796

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment after non-final rejection filed 19 October 2007.
2. ☒ The allowed claim(s) is/are 1-29 and 52-89.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### **DETAILED ACTION**

1. Claims 1-29 and 52-89 are pending as amended on 19 October 2007, claims 30-51—previously withdrawn as being non-elected without traverse—being cancelled—see below.

2. The text of those sections of Title 35, US Code not included in this action can be found in a prior Office action.

### ***Response to Amendment and Argument***

3. Applicant's replacement sheets, filed 19 October 2007, are acceptable and overcome the following:

The objection to the drawings because Figures 2, 8, 14, 15 and 16 reproduce as little more than black rectangles with little, if any, detail and Figures 1B and 3-6, are partially obscured by a background pattern and are generally of poor quality has been withdrawn.

4. Applicant's amendment to claims 28, 29 and 86, filed 19 October 2007, specifically correcting the issue of antecedent basis and parenthetical limitations, has overcome the following:

The rejection of claims 28, 29 and 86 under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been withdrawn.

5. Applicant's arguments, filed 19 October 2007, particularly that, MacLachlan, M.J. et al., Spirocyclic [1]Ferrocenophanes: Novel Cross-linking Agents for Ring-Opened Poly(ferrocenes) (MacLachlan hereinafter) shows that the material relied-upon from Galloro et al., *Replicating the Structure of a Crosslinked Polyferrocenylsilane Inverse Opal in the Form of a Magnetic Ceramic, Advanced Functional Materials*, May 2002, 12, No. 5, pp 382-388 (Galloro hereinafter) is "immobile...insoluble...and does not swell" and therefore does not meet the instant limitations of being "expandable and contractible in response to controlled uptake and expulsion of at least one of the selected fluid and the ion" or that such expansion and contraction be "fully reversible"; has been fully considered and overcomes the following:

The rejection of claims 1-27, 29, 52-83 and 86-88 under 35 USC 102(a) as being anticipated by or, in the alternative, under 35 USC 103(a) as being unpatentable over Galloro has been withdrawn.

Please note that the reference MacLachlan, presented by applicant, does not appear on an Information Disclosure Statement submitted by applicant. As a courtesy to applicant and in the interest of compact prosecution, MacLachlan has been included on the Notice of References Cited form PTO-892 attached to this Office action.

6. Applicant's arguments, filed 19 October 2007, particularly that, Kulbaba et al., *Organometallic Gels: Characterization and Electrochemical Studies of Swellable, Thermally Crosslinked Poly(ferrocenylsilane)s*, *Macromolecular Chemistry and Physics*,

June 2001, 202, No. 9, pp 1768-1776 (Kulbaba hereinafter) fails to teach a material wherein "uptake or expulsion of at least one of a selected fluid and an ion by the crosslinked metallopolymer network occurs" as a result of metal atoms being switched between more than one electronic configuration—i.e. redox'ed—and in fact explicitly discusses the redox properties of the gel without mentioning the swelling and/or shrinking of the material; has been fully considered and overcomes the following:

The rejection of claims 1-26, 29, 52-82 and 88 under 35 USC § 103(a) as being unpatentable over International Patent Application Publication WO 01/18283 (Amos hereinafter) in view of Kulbaba has been withdrawn.

The rejection of claims 1, 28, 86 and 87 under 35 USC § 103(a) as being unpatentable over US Patent Application Publication 2002/00627782 (Norris hereinafter) in view of Kulbaba has been withdrawn.

The rejection of claims 84 and 85 under 35 USC § 103(a) as being unpatentable over Amos in view of Kulbaba in further view of US Patent 4,351,929 (Nelson hereinafter) or US Patent 4,919,865 (Gibbs hereinafter) has been withdrawn.

#### ***EXAMINER'S AMENDMENT***

7. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Please cancel claims 30-51.

***Allowable Subject Matter***

8. Claims 1-29 and 52-89 are allowed.

The following is an examiner's statement of reasons for allowance: Neither Galloro nor Kulbaba, the closest prior art, teach a crosslinked metallopolymer network with metal atoms in the backbone of the polymer wherein the network reversibly expands and contracts due to absorption and expulsion a fluid or ion in response to the metal atoms changing electron configuration.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

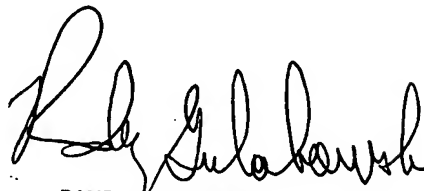
***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Kugel whose telephone number is (571) 272-1460. The examiner can normally be reached 6:00 AM – 4:30 PM Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/TJK/  
Patent Examiner, AU 1796

  
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